

CLAIMS:

1. A display device (5) comprising at least a first and a second sub-pixel (5a, 5b), said first sub-pixel (5a) being arranged to emit light of a first wavelength (λ_1) and said second sub-pixel (5b) being arranged to emit light of a second wavelength (λ_2), said first sub-pixel (5a) comprising a first light-emitting organic electroluminescent layer (1a), which is sandwiched between a first front electrode (2a) and a first back electrode (3a), wherein said first electrodes (2a, 3a) in a first state are arranged to apply an emission driving signal (V_{a1}) across said first electroluminescent layer (1a) for generating an emission state in which light of said first wavelength (λ_1) is emitted, and in a second state are arranged to apply a sensing driving signal (V_{as}) across said first electroluminescent layer (1a) in which light of said second wavelength (λ_2) incident on said first sub-pixel (5a) may be detected.

2. A display device as claimed in claim 1, wherein said first electrodes (2a, 3a) are held at essentially the same potential, i.e. said sensing driving signal is a voltage having a value of essentially 0 volts.

3. A display device as claimed in claim 1 or 2, wherein light emitted from said second sub-pixel (5b) having said second wavelength (λ_2) is arranged to be reflected and detected by said first sub-pixel (5a) in said light-sensing state.

4. A display device as claimed in claim 1, 2, or 3, wherein light (λ_1) emitted from said first sub-pixel (5a) has a lower energy content than light (λ_2) emitted from said second sub-pixel (5b).

5. A display device as claimed in any one of the preceding claims, comprising a plurality of pixels, each comprising a first and a second sub-pixel (5a, 5b), wherein light emitted from a chosen second sub-pixel is arranged to be reflected by an external reflection device, arranged in proximity of said display device, and is sensed by at least one first sub-pixel (5a) within a neighboring area.

6. A display device as claimed in any one of the preceding claims, wherein said display comprises a plurality of pixels, and wherein light emitted from a second sub-pixel is arranged to be detected by a plurality of neighboring pixels, each having a corresponding first sub-pixel.

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7. A device as claimed in claim 1, wherein said first front and back electrodes (2a, 3a) each have a work function (Φ_1, Φ_2), the difference between said work functions being greater than 1 eV, preferably lying within an interval of 2 to 3.5 eV.

10 8. A device as claimed in claim 1, wherein at least one of said emission driving signals in the first, emission state and said sensing driving signals in the second, sensing state is constituted by a pulsed driving signal, the duration of the pulses being within an interval of 0 to 20 ms.

15 9. A device as claimed in claim 8, wherein said sensing driving signal in said second state, is a pulsed driving signal comprising high-intensity pulses, for amplifying the sensing driving signal.